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Notes from the field: Bat Boxes

Patricia W. Freeman

University of Nebraska-Lincoln, pfreeman1@unl.edu

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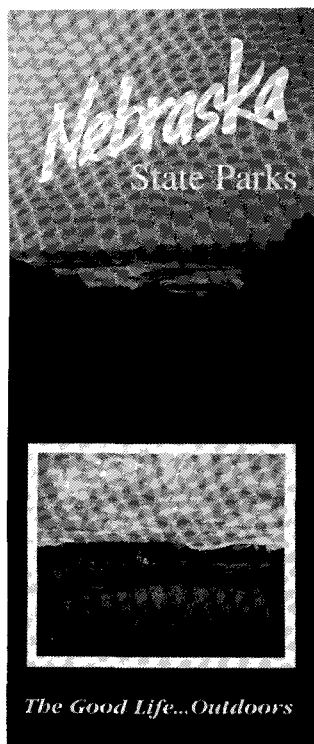
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Notes from the field

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Bat Boxes

From Patricia W. Freeman, curator of zoology at the University of Nebraska State Museum, comes the following note about these gentle night-fliers—which, as everyone should know by now, do not get tangled in women's hair, do not suck blood, and are not significant carriers of rabies:

Of the forty species of bats that live in the United States, all but three are insect-eaters. Those three are nectar feeders living near the Arizona-Mexico border. There are estimates that one mouse-eared bat weighing 10 grams (about the weight of 5 dimes) eats 3,000 insects a night. Other insect-eating bats are said to eat 600 mosquitoes in an hour, to eat half their body weight in three hours, and by one estimate, a colony of 20 million bats consumes 125 to 150 tons of insects each night. This last sounds preposterous, but having spent a night outside this very cave in Texas in late June, I can vouch that there are indeed a lot of bats, and that absolutely no flying insects bothered me that night. Bats are voracious insect eaters. They have to be because flying takes a lot of energy.

Bats eat a variety of insects including pests such as grasshoppers, cutworm and grain moths, corn borers and potato beetles, not to mention mosquitoes. Europeans have recognized this beneficial aspect of bats and for some time and have erected bat houses to attract them. Here in the United States, the resort community of Chautauqua, New York, has, for 50 years or more, tried to attract bats in the summer as an alternative to chemical controls for mosquitoes. Evenings there are reported to be remarkably free of insects, important to a community with many evening activities on the streets and in outdoor amphitheaters.

Recently, and for good reason, interest in bat houses has increased. But bats and bat houses are fundamentally different from birds and bird houses. Birds are active in the day, and bats are active at night. Unlike bird houses, where it is easy to see the birds and any problems that arise from the placement of the house, bat

houses may be more sensitive to environmental conditions, and problems more difficult to diagnose.

Probably most important for the success of a bat house is the daily temperature regime. The physical factors that affect temperature are the size of the house, its shape, insulation and placement. Also important are the size and shape of the internal spaces for roosting (not nesting), the roughness of the surfaces bats cling to and climb around on, and the distance to drinking and feeding areas.

Large houses are freestanding, and look rather like small barn roofs. The smaller ones should be placed 10 to 15 feet or more off the ground facing east or southeast to catch first light. No obstructions should block the entry, which is the entire bottom of the box, not a hole in the front as in a bird house. The idea is that bats will enter from the bottom, and climb or crawl on the rough wood between boards spaced about three quarters of an inch apart. Often they can be found to enter spaces as narrow as a quarter to a half inch between the clapboards of a house. There must be something secure about being sandwiched between two boards.

The roost requirements vary with species and social group and climate. One of two adjacent houses may be occupied, the other empty. Large species such as our big brown bat, *Eptesicus fuscus*, like roost temperatures in the 80- to 90-degree range, but the smaller species like it even hotter, from 90 to 110 degrees. Some roosts get hotter than 110 degrees and are still appropriate. Actually, it is the evening drop in temperature that signals the bats that it's time to go eat. Some people have solved the problem of temperature and placement of bat houses by putting up sets of four houses, each facing a different direction. Still another solution is to use tar paper about 18 inches wide and skirt a tree so that it is tight at the top but flares about two inches at the bottom. Here the bat can select its own temperature as the day or season changes.

A couple of items about the house

itself: use rough wood for the inside, and don't paint it or treat it with preservative. Old planks have been used successfully. Finally, all cracks in the sides, front, back and roof should be caulked. This eliminates air circulation except from the bottom, and allows the house to trap the bats' body heat. Tall houses may be more successful than short ones because there is a greater internal temperature gradient that permits flexibility in adjusting to daily and seasonal temperatures.

Much of what we know about the success of bat houses is still trial and error. If you decide to put up a house, and you find a successful solution for this part of the country, it would be interesting to know about, and I would be happy to hear from you. If we can learn the specific requirements for bats, then, we can provide roosts for them when natural roosts are scarce or, if necessary, remove them from undesirable places and provide desirable homes elsewhere.

Much of this information comes from a book titled *America's Neighborhood Bats*, by Merlin Tuttle, of Bat Conservation International (P.O. Box 162603, Austin, TX 78716). The plans for building a bat house are reproduced with permission from Bat Conservation International.

DIMENSIONS:

A—Roof, 11" x 10"

B—Back, 8" x 22"

C & D—Sides 8" wide x 22" at back, 17 1/4" at front

E—Front, 8" x 17 1/4"

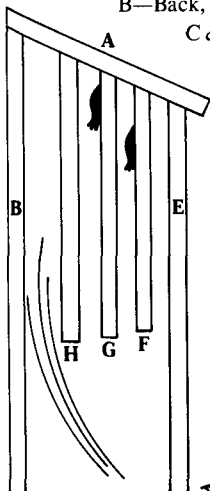
F—First partition, 8" x 11"

G—Second partition, 8" x 12"

H—Third partition, 8" x 13"

SPACING BETWEEN PARTITIONS, FRONT TO BACK:

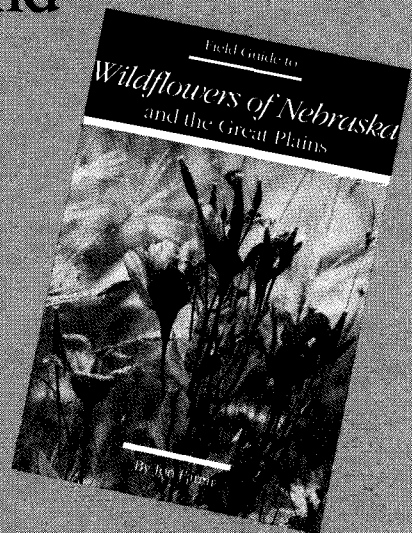
3/4", 3/4", 1", 1 3/4"



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